

Control unit IndraDrive

Commissioning

Linear axis LDx with IndraDrive control unit







Imprint:

Copyright:

This manual remains the copyrighted property of SCHUNK GmbH & Co. KG. It is solely supplied to our customers and operators of our products and forms part of the unit. This documentation may not be duplicated or made accessible to third parties, in particular competitive companies, without our prior permission.

Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

Edition: 01.03/ 21.09.2012 / en

© SCHUNK GmbH & Co. KG, Lauffen/Neckar

All rights reserved

Dear Customer,

Congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase. You can reach us directly at the mentioned addresses in the last chapter of these instructions.

Kindest Regards,

Yours SCHUNK GmbH & Co. KG Precision Workholding Systems Bahnhofstr. 106 – 134 D-74348 Lauffen/Neckar

Tel. +49-7133-103-2503 Fax +49-7133-103-2189 automation@de.schunk.com www.schunk.com





Table of contents

1	About	this manual4						
	1.1	Purpos	e/validity	4				
	1.2	Applicable documents (on CD-ROM)						
	1.3	Symbo	le in dieser Anleitung	4				
2	Basic s	safety n	otes	5				
	2.1	Intende	ed use	5				
	2.2	Enviror	nmental and operating conditions	5				
	2.3	Control	lled production	5				
		2.3.1	Protective equipment	5				
		2.3.2	Constructional changes, attachments, or modifications	6				
	2.4	Person	nel qualification	6				
	2.5	Safety-	conscious working	6				
3	Comm	issionin)g	6				
	3.1	Require	ed equipment	6				
	3.2	Commi	ssioning tasks	7				
		3.2.1	Loading motor parameters	8				
		3.2.2	Starting field bus	9				
		3.2.3	Selecting operating mode	10				
		3.2.4	Testing measuring system	10				
		3.2.5	Control loop monitoring	12				
		3.2.6	Connecting Control unit IndraDrive to the power supply	13				
		3.2.7	Release oft he controller (RF)	13				
		3.2.8	Set reference controller	13				
		3.2.9	Set absolut measurement	15				
		3.2.10	Mounting the drive	15				
		3.2.11	Set the parameters for the software controlled limits	16				
		3.2.12	Set the parameters for the position and speed controllers .	17				
		3.2.13	Commutation setting (only up to firmware 16V10)	18				
4	Appen	dices		19				
	4.1	Connec	ction diagram IndraDrive	19				
	4.2	Design	ation key of files for motors	21				
	4.3	Overvie	ew of motor types	22				



1 About this manual

1.1 Purpose/validity

This manual is part of the drive control unit IndraDrive and describes the safe and proper start up of the linear drive LDx.

1.2 Applicable documents (on CD-ROM)

Document	Purpose
Catalog	Technical data and application parameters for the module and information on accessories. The respective latest version is valid
Assembly and operating manuals for linear motor drives	Detailed information about assembly, adjustment and start-up of linear motor drives.
Manual and references for Control unit IndraDrive	Detailed information about assembly, adjustment and repair of the Control unit IndraDrive.
General terms of business	Including notes on the warranty.

You can find the following documents on our homepage:

Tabelle 1

1.3 Symbols inthis manual

To give you quick access to information, the following symbols will be used in this manual:

Symbol	Meaning
	Dangers for persons.
	Nonobservance causes death or serious injuries.
A WARNING	Dangers for persons.
	Nonobservance can cause death or serious injuries.
	Dangers for persons.
	Nonobservance can cause slight injuries.
	Information on avoiding material damage.
\checkmark	Prerequisite for a handling instruction.
→	Handling instruction, also measures in a warning or note.
1.	Step-by-step handling instruction.
2.	➔ Observe the order.
< >	Menus and menu items

Tabelle 2



2 Basic safety notes

2.1 Intended use

The module is intended for installation in a machine. The requirements of the applicable guidelines must be observed and complied with.

The module may be used only in the context of its defined application parameters.

Any other use or use exceeding that specified is an infringement of use for intended purpose. The manufacturer bears no liability for damage resulting from such use.

2.2 Environmental and operating conditions

- ➔ The module may be used only in the context of its defined application parameters (see catalog and applicable documents).
- ➔ Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Excepted are modules that are designed especially for contaminated environments.

2.3 Controlled production

The module represents the state of the art and the recognized safety rules at the time of delivery. However, it can present risks if, for example:

- The module is not used in accordance with its intended purpose.
- The module is not installed or maintained properly.
- The EC Machinery Directive, the VDE directives, the safety and accident-prevention regulations valid at the usage site, or the safety and installation notes are not observed.

2.3.1 Protective equipment

→ Provide protective equipment per EC Machinery Directive.



2.3.2 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission of SCHUNK.

2.4 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the Control unit may be performed only by trained specialist personnel.

Every person called upon by the operator to work on the module must have read and understood the complete Assembly and Operating Manual, especially chapter 2 "Basic safety note". This applies particularly to occasional personnel such as maintenance personnel.

2.5 Safety-conscious working

- ➔ Avoid any manner of working that may interfere with the function and operational safety of the Control unit.
- Observe the safety and accident-prevention regulations valid at the usage site.

3 Commissioning

3.1 Required equipment

The following equipment/requirements are necessary for commissioning a drive with IndraDrive:

- ✓ a fully installed drive with an IndraDrive drive control unit (for connection schematics, see chapter "4")
- ✓ PC with network connection
- IndraWorks operating software (from Version 08Vxx) installed on PC
- Ethernet (Patch cable) PC connection cable IndraDrive (order no. 329 962)
- Commissioning CD with the motor parameters and the files for parameter selection.



3.2 Commissioning tasks

A DANGER

Danger to life due to electric shock!

Touching live parts can cause death.

Only professional electricians may carry out work on electrical systems and equipment under compliance of the rules for working with electrical systems..

NOTICE

Damage to the guided slides or guide rail is possible!

Activating the "Automatic set up of the control circuit" command can lead to a crash of the guided slide.

- → Under no circumstances activate the automatic set up of the control circuit for motors.
- Wire drive control unit IndraDrive to higher order controller in accordance with the connection schematics. (siehe Kapitel 4, Seite 19)
- 2. Create connection between PC and controller.
- 3. Start IndraWorks on PC.

Note

Operation of IndraWorks is explained in the help menu of the program.



3.2.1 Loading motor parameters

1 In the main window of IndraWorks, select <View> → <Project Explorer>.

The Project Explorer opens.

IndraDrive [1] Anwendungsart	Achsnummer	Achsnummer Achsbezeichnung Sercosadresse Achstyp				
Leistungsversorgung	1	Anwendungsart		-ungült	tig- Reale Achse	
Achse [1] Anwendungsat	Achsstatus	A0008 SERCOS III: NRT-	Mode		S Fehler kischen	
🖹 🛅 Motor, Bremse, Messsysteme	Aktuelle Werte			_		
Wichtung / Mechanik Grenzwerte	Position	-0.0001 mm				
Antriebsregelung	Geschwindickeit	0.000 mm/r	min			
Getrebsatten / Antreb Halt Getrebsatten	Beschleunigung	0.000 mm/s	ŕ			
Messtaster	Drehmoment / Kraft	0,0 %				
Contracting / Indenieonanne Lokale I/0					Details <<	
	Meldungen A "tit + 0 A "tit + 0 A "tit + n Lageislwette Motogeber Optionaler Geber Officialer Geber	Nicht aktiv P >= Px Md >= Mdx Md >= Mdgenz 00000 mm O in Refe 0.0000 mm O in Refe 0.0000 mm O in Refe	Steue Antrie In-Po I	nteil betriebsberer - und Leistungs b momentenbeh b HALT aktiv (A bstehler sition sitionsfenster gro re Drehmoment ive Drehmoment	all (bb) allet (AF) H) bb pegenzung bbgrenzung	

Fig. 1 Project Explorer

Fi Fi Fi	Achsnummer	Achsbezeichnung		Sercosadresse	Achityp	
		ADDDR CEDCOE III, NDT Mode			in fusion	
+ Parameter +	Parametereditor	A0000 SERLUS III: MR1-M00e			ier loschen	
B Wichtung / Mechanik	Parametergruppe	0.0001				
Grenzwene Grenzwene Antriebsregelung	Speichern	-0,0001 mm				
Betriebsarten / Antrieb Hat Betriebsarten /	Laden	0.000 mm/min				
Messtaster	Drehmoment / Kraft	Drehmoment / Kraft 0,0 %				
E Construierung / Inbetriebnahme E Construierung / Inbetriebnahme	Crement rout		0)etails <<		
	Meldungen n_ist=0 n_ist <rs< td=""><td>icht aktiv O P >= Px</td><td>Steuertel I Steuer-un Antrieb mo Antrieb HA Antriebsfel In-Position</td><td>betriebsbereit (bb) d Leistungsteil betri mentenbehaftet (AF LT aktiv (AH) hler sfenster grob</td><td>ebsbereit (Ab) 7)</td></rs<>	icht aktiv O P >= Px	Steuertel I Steuer-un Antrieb mo Antrieb HA Antriebsfel In-Position	betriebsbereit (bb) d Leistungsteil betri mentenbehaftet (AF LT aktiv (AH) hler sfenster grob	ebsbereit (Ab) 7)	
	O n_ist = n_soll	Md >= Mdx Md >= Mdgrenz	 positive Dr negative D 	ehmomentbegrenz.)rehmomentbegrenz	ung sung	
	Lageistwerte Motorgeber Optonaler Geber O Referenzgeber in Ref	0.0000 mm O in Referenz 0.0000 mm O in Referenz stenz				

Fig. 2 Select linear motor type

 Select <IndraDrive> with right mouse button and then in the context menu <Parameter handling> → <Import>: The dialog boxappears:



Öffnen		? ×
Suchen in:	🛅 Inbetriebnahme_DVD_Version_14 💽 🔇 🌶 📂 🖽•	
Zuletzt verwendete D Oesktop Eigene Dateien Arbeitsplatz	Linearmotor MLD_Linearmotor PPU_E30_Pick&Place_Unit PPU_E50_Pick&Place_Unit RDx_Torquemotor	
Netzwerkumge	Dateiname: -085-037-01-3:X-NN-IDC-NNN-EC-NN_V01.par	fnen
bung	Dateityp: Parameter-Datei (*.par)	echen

Fig. 3 Import motor parameters

- 3. Select file <motor parameter> on the commissioning-DVD.
- 4. Select the appropriate motor parameter file name from the description key and the mapping file linear-drive motor.
- 5. Select the folder of the linear motor types in the dialog box.
- 6. Select desired motor parameter file in the next dialog box and open it.

The motor parameters are loaded.



Fig. 4 Load motor parameters

3.2.2 Starting field bus

- Configure field bus interface in accordance with IndraDrive manufacturer documentation and control cabinet documentation.
- 2. Connect and start field bus.
- 3. Implement and check the wiring for controller enable, stop, reference switch and limit switch, depending on the field bus interface.



3.2.3 Selecting operating mode

WARNING

Risk of injury!

An improperly set operating mode can lead to undesired drive movement.

- ➔ Under no circumstances set the operating modes "Torque control" or "Speed control"
- → Activate the drag fault monitoring and configure it sensibly
- → Switch the control unit into the operating mode (phase 4).

In the standard control display on drive control unit IndraDrive BB will be displayed.

3.2.4 Testing measuring system

 In the tree view of the project Explorer, select <IndraDrive> → folder <axis>.

Führungskommunikation Leistungsversorgung	Achsnummer Achsbez		eichnung Iungsart		Sercosadresse Achstyp -ungültig- Reale Achse		Achstyp Reale Achse
Achse [1] Anwendunnsart Group Führungskor Achszustand	Achestatus	A0008 SERCOS	III: NRT-Mode		¢	🔇 Fe	ehler löschen
Wichtung / Parameter	Achestatus		- i				
Eigenschaften	😮 Hilfe zu Achsstat	us	mm/min	mm/min			
Fehlerreaktion Messtaster	Diagnosedaten M	Diagnosedaten Motor					
Optimierung / Inbetriebnahme Iokala I/O	Cables lässban		%				Details <<
	Fehler-/Diagnose Anzeige-Mittelwe Patchfunktion Meldungen	speicher rtfilter	Steue Steue Antriel		rteil betriebsbereit (bb) 4- und Leistungsteil betriebsbereit (Ab) b momentenbehaftet (AF) b hALT aktiv (AH) bsfehler		triebsbereit (Ab) AF)
	On_ist=0 OP>=Px On_ist <nx On_ist=n_soll OMd>=Mdx OMd>=Mdgrenz</nx 				In-Position In-Positionsfenster grob positive Drehmomentbegrenzung negative Drehmomentbegrenzung		
	Lageistwerte Motorgeber Optionaler Geber O Referenzgeber i	0.0000 mm 0.0000 mm n Referenz) in Referenz				

Fig. 5 checking status

Right click <Type of application> and then select
 <Diagnostics> from the resulting context menu → Select
 <Status>..

The window for the <Status> folder will open.



Check and activate the pneumatic brake (optional) check and activate

NOTICE

Damage to the linear motor axis possible!

Guide blade carrier and pneumatic holding brake can be damaged by forcible displacement of the carriage.

- ➔ Do not move the guide blade carrier or carriage with force during active holding brake.
- ➔ Use only low-power to examine the function of the pneumatic holding brake of the carriage.
- 1. Try to move the carriage careful by hand during holding brake.
- 2. Apply 24-V power supply to the brake valve. The pneumatic brake (optional) is activated.

Check display and scaling of the measurement system

- Move the carriage by hand. There should be no leaps in the display "position" (see the red mark in Fig. 5 page 6).
- 2. Apply a Scale (about 10 cm) on the guide blade carriage and move carrier along the scale.
- 3. Compare the measured travel distance with the display of the actual position.



 IndraWorks bs - Acgekreiciderwachung - Achte (1) Anwendungsatt

 Persentiering
 IndraWorks bs - Acgekreiciderwachung

 IndraWorks bs - Acgekreiciderwachung
 Etos

 IndraWorks bs - Acgekreiciderwachung
 IndraWorks bs - Acgekreiciderwachung

 IndraWorks bill Anwendungsatt
 IndraWorks bill Anwendungsatt

 IndraWorks bill Anwendungsatt

3.2.5 Control loop monitoring

Fig. 6 control loop monitoring

In the tree view of the project Explorer, select
 IndraDrive> → <Motion> → <Axis> → <Control> → <Axis →
 control> → <control loop monitoring>
 The dialog box <Control loop monitoring> appears:

NOTICE

Damage to the carriage and guide blade carrier is possible!

A disabled or set too high loop monitoring window can lead to a crash of the carriage.

- → Set useful control loop monitor parameters.
- 2. Activate <Speed control loop monitoring> in the option field.
- 3. Parameterize the position control loop monitoring.



3.2.6 Connecting Control unit IndraDrive to the power supply

- → Switch on power at the control switch cabinet (power supply connection 380 V).
- → AB appears on the display of the standard operating field of the Control unit IndraDrive which indicates that the Control unit IndraDrive is connected to the power supply

3.2.7 Release of the controller (RF)

Note

The control release can be linked up by software or hardware depending on the field bus system.

- 1. Link up with control release (RF).
- 2. Link up with "Hold".

On the display of the standard panel at the IndraDrive ${}^{\rm AF}$ or hold ${}^{\rm AH}$ appears.

3.2.8 Set reference controller

This section is only required if an incremental measuring system is used.

In the tree view of the project Explorer, select <IndraDrive> →
 <Motion> → <Axis> → <Create position data reference> →
 <Data reference motor encoder>. The dialog box <Data reference motor encoder> appears:





Abb. 7 Measurement motor encoder - incremental

- 2. Move the guide carriage with Field bus slowly in both directions.
- 3. Test and parameterize the direction, speed and acceleration.



3.2.9 Set absolut measurement

These chapter is only required, if an absolute measuring system is used (TTK 70)

 In the tree view of the project Explorer, select <IndraDrive> → <motor, brake measuring system> <motor encoder> <assign measurements>

IndraWorks Ds - Malibezug Motorgeber - Achsel [1] Parametriurung Inbetriebnahme Diagnose / Service Zundek - 0 - 4 • 0 • 1 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Amendangsart Extra Hife • S282005 111: • • • • • • • • • • • • • • •	
---	---	--

Fig. 8 set absolute measurement

- Bring the axis in the desired position and click the button < Set absolute measurement >.
- 3. A desired shifting of the offset can be entered in the box <reference measurement.

Note

Perform Parameterization according to the functional description in the documentation of the drive controller Rexroth IndraDrive.

3.2.10 Mounting the drive

- 1. Mount all moving modules (moving mass).
- 2. Set the end switch
- 3. Move drive to the intended position.



3.2.11 Set the parameters for the software controlled limits

In the tree view of the Project Explorer, select <IndraDrive>
 → <Motion> → <Axis> → <Travel limits>.

 The <Travel limits> window will open:

 In a state of a stat	- Lagegrenzwertübeswachung			
Leistungsversorgung	Lage-Istwert Geber 1	0.0000	mm	
Achse [1] Anwendungsart Führungskommunikation - Achse	Lage-Grenzwert positiv	0,0000	mm	
Motor, Bremse, Messsysteme	Lage-Grenzweit negativ	0.0000	mm	
Grenzwerte	Uberwachung Fahrbereichsgrenzschalter	- Reaktion auf I	ahrbereichsüberschreitung	
Bewegungsgrenzwerte	C Ollner	C	Vernung	
E Cantriebsregelung	G Schließer	G	enler	
Betriebsarten / Antrieb Halt Ehlerreaktion	Geschwindigkeits-Grenzwert positiv	0.000	mm/min	
- Messtaster	Geschwindigkeits-Grenzwert negativ	0,000	mm/min	
Lokale I/O	Geschwindigkeits-Grenzwert bipolar	240 000,000	mm/min	
	Beschleunigung bipolar	100 000,000	mm/s²	
	Ruck-Grenzwert bipolar	0,000	mm/s ³	
	Stillstandsfenster	200,000	mm/min	
	Drehmoment-/Kraft-Begrenzung			

Fig. 9 Travel limits

- 2. Activate the <Position limit monitor> field
- 3. Activate the <Travel limit switch> field
- 4. Configure the travel limit values in the dialog box



3.2.12 Set the parameters for the position and speed controllers

- 1. In the tree view of the Project Explorer, select <IndraDrive>
 - → <Motion> → <Axis> → <Axis control> → Select <Axis control settings>

The <Axis control settings> window will open



Fig. 10 Axis control settings

2. Make the fine adjustments for the position and speed controllers.

Note

Set the parameters as specified in the functional description in the documentation for the Rexroth IndraDrive (chapter <Drive controller>, section <axis control (closed loop mode)>.



3.2.13 Commutation setting (only up to firmware 16V10)

 In the tree view of the project Explorer, select <IndraDrive>
 → <Application type> → <Drive control> → <Motor control> → <Commutation setting>. The <Commutation setting> dialog window appears:

IndeDive (I) Anvendagsat Fichurgskommunikaion Leitungskommunikaion Leitungskommunikaion - Achte Motor, Breme, Messysteme Motor, Breme, Messysteme Motor, Breme, Messysteme Motor, Breme, Messysteme Motoregelung Ubericht Feldegelung Notoregelung	Kormulearupverfahren Gespert Messverfahren Singsverfahren Singsverfa	Conserved and a second and
--	---	---

Fig. 11 Commutation settings

Up to firmware 16V10, a manual modification needs to be made upon initial commutation of the drive. During its initial commutation, the drive searches independently for a voltage vector (amplitude in the test signal (see Fig. 11). In certain cases, this value is not enough to drive the motor to saturation. Therefore the value needs to be increased manually. For example, if the automatically calculated value is 68V, simply increase it by **40** to 108V. Every value that the controller calculates should be increased by **40**.

Note

With firmware version 16V12 and higher, manual intervention in the parameter settings is no longer necessary. The process of commutation finding was improved in these versions.



4 Appendices







Fig. 12 Connection diagram IndraDrive





4.2	Designation	kev (of files	for	motors
	Doorgination	noy '			

	AAA - B B - CCCC - DD - E - FFF - GGG - HHH - III
Profiltyp	
H- Profil	
K- Profil	
FU- Profil	
N- Profil	
M- Profil	
T- Profil	LDT
P- Profil	LDP
H- Profil (CFK)	
K- Profil (CFK)	LCK
FU- Profil (CFK)	LCF
N- Profil (CFK)	
M- Profil (CFK)	
T- Profil (CFK)	LCT
P- Profil (CFK)	LCP
Bauart	
Einzelmotor / Single Motor	
Doppelmotor / double moto	or D
Unterstützes Profil / U Prof	fil U
Schlitten	
Standard	
Lang / long	
Groß / large	
Wicklungskennung Standardwicklung	O1
Gebertyp	
	Sin/Cos, 1 Vss, 1 mm Periode (SIKO)
	Sin/Cos, Ivss Periode (SIKO) mit Referenzmarke
	Sin/Cos, 1 Vss, 20 µm Periode (Heidenhain) 2
	Sin/Cos, 1 vss, 20 µm Periode (NUMERIK) 2
RS40 5/25/2048	Sin/Cos, 1 Vss Hiperface absolut (Sick Stegmann) S
RS30/16/1000	Sin/Cost 1 Ves 1000 Perioden/Um/r (NUMERIK) 4
Reserve	
Reglertyp	
Indradrive	
Indradrive CS	
Option 1	
Encoder EnDat / 1Vss/TTL	L EN2
Encoder IndraDyn / Hyperf	face ENS
Encoder 1Vss	EC
Option 2	
Encoder EnDat / 1Vss/TTL	L EN2
Version	
Auslieferungsstand	Vxx

Fig. 13 Designation key of files for motors

4.3 Overview of motor types

Motorbez.	Achsname	Dateien	Kurznan	Länge	Breite	Höhe	Wicklun	Geberty	Wellenty	Regler	Steuerte	Option1	Option2	Version	Suffix
			AAAAAA -	B88 -	ccc	- DDD	- EE -	F	- G -	ННН	-	-[]]]	-[KKK]	-]LLL]	
MGH-ES-0050		Achsenbez.	LDH005 -	150 -	058	- 037	- 01 -	X	- X -	l		(<u> </u>			
	LDH-ES-0050	Motorparameter	LDH005 -	150 -	058	- 037	- 01 .		<u>+ </u>				- NN	- V01	. par
L	1000-0030		LDH005 -	150 -	058	- 037	- 01 -	3	- <u>x</u> -		NNN	EC	- NN	- V01	. par
		Motordaten	LDH005 -	150 -	058	- 037	- 01 -	·]					MOT	- V01	. xis
MGK-ES-0100	1	Achsenbez.	LDK010 -	150 -	085	- 037	- 01 -	X	- x -	1					
	LDK-ES-0100	Motorparameter	LDK010 -	150 -	085	- 037	- 01 -	1	- X -	IDC	NNN	- EC	- NN	- V01	. par
	LDK-US-0100		LDK010 -	150 -	085	- 037	- 01	2	<u> </u>		- NNN	- EC	- NN	- V01	. par
		Motordaten	LDK010 -	150 -	085	- 037	- 01		<u>- x -</u>			- EC	MOT	- V01 - V01	. par . xis
MAK EL ANA		to the sub-	L BKOOO L	0.01	005	1 007 1	1.041	1.21	1.1	7					
MON-EL-UZUU	LDK-EL-0200	Motorparameter	LDK020	250	085	037	-101				- NNMI	. EC	. NN	. V01	nar
	LDK-UL-0200		LDK020 -	250 -	085	- 037	- 01	2	- x -		NNN		- NN	- V01	. par
•		[LDK020 -	250 -	085	- 037	- 01 -	3	-	DCI	- NNN	- EC	- NN	- V01	. par
		Motordaten	LDK020 -	250 -	085	- 037	- 01 -	·]					MOT	- V01	. xis
MGF-US-0100	1	Achsenbez.	LDF010 -	150 -	100	- 037	- 01 -	X	- x -	I	.,				
	LDF-US-0100	Motorparameter	LDF010 -	150 -	100	- 037	- 01 -	1	<u>- X -</u>		- NNN	- EC	- NN	- V01	. par
	1		LDF010	150 -	100	- 037	- 01	3	- <u>x</u> -		NNN	EC	- NN	- V01	. par
		Motordaten	LDF010 -	150 -	100	- 037	- 01 -						MOT	- V01	. xis
MGF-UL-0200		Achsenbez.	LDF020 -	250 -	100	- 037	- 01 -	X	- X -	I					
MGF-UL-0200	LDF-UL-0200	Motorparameter	LDF020 -	250 -	100	- 037	- 01 -	1	- X -	IDC	- NNN	- EC	- NN	- V01	. par
			LDF020	250 -	100	037	- 01	2	<u>- X -</u>	IDC	- NNN	- EC	• NN	- V01	. par
		Motordaten	LDF020 -	250 -	100	- 037	- 01 -		<u>~ ^ ^</u>		. [141.41.4] .	- EV	MOT	- V01	. yai . xis
MCN-ES-0100		Achsenhez	I DN010 .	150 .	085	- 037	_[01].			1					
	LDN-ES-0100	Motorparameter	LDN010 -	150 -	085	- 037	- 01	1	- x -	IDC	NNN	- EC	- NN	- V01	. par
	LDN-US-0100		LDN010 -	150 -	085	- 037	- 01 -	2	- X -	IDC	NNN	- EC	- NN	- V01	. par
		Bantovalatan	LDN010 -	150 -	085	- 037	- 01 -	3	- X -	IDC	NNN	• EC	- NN	- V01	. par
		INDIDICATION	EDN010 [-	130 -	000	• <u>037</u>	-1011-	<u>'</u>						- 1 401	. 1415
MGN-EL-0100		Achsenbez.	LDN010 -	150 -	085	- 037	- 01 -	X	- <u>x</u> -	100	I BIBIBI	Teat	N INI	11004	
	CUN-EL-0100	nviolorparameter	LDN010 -	150 -	085	- 037	- 01	12	- <u>x</u> -				- NN	- V01 - V01	. par
L		1	LDN010 -	150 -	085	- 037	- 01	3	- X -	IDC	NNN	- EC	- NN	- V01	. par
		Motordaten	LDN010 -	150 -	085	037	- 01 -	·[MOT	- V01	. xis
MGN-DS-0200		Achsenbez.	LDN020 -	150 -	085	- 037	- 01 -	X	-	<u> </u>					
	LDN-DS-0200	Motorparameter	LDN020 -	150 -	085	037	- 01	1	- X -	1DC	- NNN	- EC	- NN	- V01	. par
			LDN020 -	150 -	085	037	- 01	2			MNN		- NN . NN	- VU1	. par
		Motordaten	LDN020 -	150 -	085	- 037	- 01						MOT	- V01	. xls
MGN-EL-0200	1	Achsenbez.	LDN020 -	250 -	085	037	- 011-	TXT	<u></u>	ī					
	LDN-EL-0200	Motorparameter	LDN020 -	250	085	037	- 01	11	- x -	IDC	- NNN	EC	- NN	- V01	. par
	LDN-UL-0200		LDN020 -	250 -	085	- 037	- 01 -	2	- X -		NNN	- EC	- NN	- V01	. par
L	UUM-EL-0200	Motordaten	LDN020 -	250 -	085	- 037 - 037	- 01 -	3	<u>• X </u> •			- =c	MOT	- V01 - V01	. par . xis
		TA abaa nk ==	1 194000	95011	0.05	1 0037	1.04	᠇᠊᠋᠋ᠸ᠇		T					
MAK-EA-0300	LDN-EG-0300	Motornarameter	LDN838 -	350 -	085	037	- 01		- <u> ^ </u> -	IDC	NNN	EC T	. NN	. \/01	. nar
	LDN-UG-0300		LDN030 -	350	085	037	- 01	2	- x -	DC	- NNN	- EC	- NN	- V01	. par
1	LDP-EG-0300	1	LDN030 -	350 -	085	- 037	- 01 -	3	- X -	IDC	- NNN	- EC	- NN	- V01	. par
l															

Fig. 14Assignement of the motors to the drives and files (page 1 of 3)



Motorbez.	Acnsname		Datelen				p	é	ď		eil	_	0	_	
			Kurzna	Länge	Breite	Höhe	Wicklur	Gebert	Wellent	Regler	Steuert	Option'	Option2	Versior	Suffix
			AAAAAA	- BBB	. ccc	- DDD	- EE -	F	G	HHH	- III ·	JJJ	- ккк	- LLL	
2x MGN-EL-0200		Achsenbez.	LDN040	- 250	085	- 037	- 01 -	x	X -]					
	LDN-DL-0400 LDP-DL-0400	Motorparameter	LDN040 LDN040	- 250	· 085 · 085	- 037 - 037	- 01 - - 01 -	2	x -	IDC	- NNN - - NNN -	EC EC	- NN - NN	- V01 - V01	.par .par
		Motordaten	LDN040	- 250	085	- 037 - 037	- 01 -	3	X -	IDC	- NNN ·	EC	- NN MOT	- V01 - V01	. par . xis
				11			1						1	1	
2x MGN-EG-0300		Achsenbez.	LDN060	- 350	085	- 037	- 01 -	x	x -]					
	LDN-DG-0600 LDP-DG-0600	Motorparameter	LDN060 LDN060	- 350	· 085 · 085	- 037 - 037	- 01 -	2	X -	IDC IDC	- <u>NNN</u> - NNN -	EC EC	- NN - NN	- V01 - V01	.par .par
		Motordaten	LDN060 LDN060	- 350	085	- 037 - 037	- 01 -	3	X -	IDC	- NNN ·	EC	- NN MOT	- V01 - V01	. par . xis
		interest and intere			1000		101	-						1.01	
MGM-ES-0100		Achsenbez.	LDM010	- 150	170	- 037	- 01 -	x	X.]					
	LDM-ES-0100	Motorparameter	LDM010 LDM010	- 150	· 170 · 170	- 037 - 037	- 01 -	2	X	IDC	- NNN - - NNN -	EC EC	- NN - NN	- V01 - V01	. par . par
		Motordaten	LDM010 LDM010	- 150 ·	· 170 · 170	- 037 - 037	- 01 -	. 3 .	X -		- NNN ·	EC	MOT	- V01 - V01	.par .xls
MGM-ES-0200		Achsenbez.	LDM020	- 250	170	- 037	- 01 -	x	X.]	[1	1.001	
	LDM-ES-0200 LDM-US-0200	Motorparameter	LDM020 LDM020	- 250 - 250	170 170	- 037 - 037	- 01 - - 01 -	2	x -	IDC	- <u>NNN</u> - <u>NNN</u> -	EC EC	- NN - NN	- V01 - V01	. par . par
		Motordaten	LDM020	- 250	· 170	- 037 - 037	- 01 -	3.	X -	IDC	- NNN ·	EC	- NN MOT	- V01	. par
				1 - 00			1.5.1.						1	1 - 0 -	1410
MGM-EL-0200		Achsenbez.	LDM020	- 250	170	- 037	- 01 -	x.	X -						
	LDM-EL-0200	Motorparameter	LDM020	- 250	· 170	- 037 - 037	- 01 -	1	X		- NNN -	EC EC	- NN	- V01 - V01	. par
		- Matandatan	LDM020	- 250	170	- 037	- 01 -	3	х.	IDC	- NNN	EC	- NN	- V01	par
		Motordaten	LDMUZU	- 250	- 170	- 037	-[01]-	1						- 201	. xis
MGM-EL-0400		Achsenbez.	LDM040	- 250	170	- 037	- 01 -	x	x.	1					
	LDM-EL-0400	Motorparameter	LDM040	- 250	170	- 037	- 01 -	1.	X.		- NNN ·	EC	- NN	- V01	. par
	LDM-0L-0400		LDM040	- 250	170	- 037	- 01 -	3	x	IDC	- NNN	EC EC	- NN	- V01	. par
		Motordaten	LDM040	- 250	170	- 037	- 01 -	•					мот	- V01	. xis
MGT-ES-0100		Achsenbez.	LDT010	- 150	250	- 037	- 01 -			1					
	LDT-ES-0100	Motorparameter	LDT010	- 150	250	- 037	- 01 -	1.	X.	IDC	- NNN ·	EC	- NN	- V01	. par
	LD1-05-0100		LDT010	- 150	250	- 037	- 01 -	3	X		- NNN ·	EC EC	- NN - NN	- V01 - V01	. par . par
		Motordaten	LDT010	- 150	250	- 037	- 01 -	•					МОТ	- V01	. xis
MGT-ES 0200		Achecohor	1 07020	0.00	250	097	_ 04	TAL		1					
MG1-E3-0200	LDT-ES-0200	Motorparameter	LDT020	- 250	250	- 037	- 01 -	1	x -	IDC	- NNN	EC	- NN	- V01	. par
	LDT-US-0200	-	LDT020 LDT020	- 250	250	- 037 - 037	- 01 -	2.	X	IDC	- NNN - - NNN -	EC EC	- NN - NN	- V01 - V01	. par . par
		Motordaten	LDT020	- 250	250	- 037	- 01 -	•					мот	- V01	. xis
				1	1		1			1					
MGT-ES-0300	LDT-ES-0300	Achsenbez. Motorparameter	LDT030 LDT030	- 350	250	- 037 - 037	- 01 - - 01 -	X -	X -		- NNN	EC	- NN	- V01	. par l
	LDT-US-0300	-	LDT030	- 350	250	- 037	- 01 -	2	X -		- NNN ·	EC	- NN	- V01	. par
		Motordaten	LDT030	- 350	250	- 037	- 01 -		1 ^ 1	1.00	Lengal.		МОТ	- V01	. xis
										_					
MGT-EL-0200	I DT.EL -0200	Achsenbez. Motorparameter		- 250	250	- 037	- 01 -	X .	X		- NNNI		. NN 1	. \/04	nar
	LDT-UL-0200		LDT020	- 250	250	- 037	- 01 -	2	x	IDC	- NNN	EC	- NN	- V01	. par
		Motordaten	LDT020 LDT020	- 250	250	- 037 - 037	- 01 - - 01 -	. 3.	X -	IDC	- NNN ·	EC	- NN MOT	- V01 - V01	. par . xis
					•			•							
										-					
MGT-EL-0400		Achsenbez.	LDT040	- 250	250	- 037	- 01 -	X.	X -		1				_
MGT-EL-0400	LDT-EL-0400 LDT-UL-0400	Achsenbez. Motorparameter	LDT040 LDT040 LDT040	- 250 - 250 - 250	250 250 250	- 037 - 037 - 037	- 01 - - 01 - - 01 -	X · 1 · 2 ·	X - X -	IDC IDC	- NNN -	EC EC	- NN	- V01 - V01	. par . par

Fig. 15Assignement of the motors to the drives and files (page 2 of 3)



MULUI D62.	Achsname		Dateien emeuzin Y		Länge		Breite		Höhe		Wicklung	Gebert	Generith	Wellentyp		Regler		Steuerteil		Option1		Option2			Version		Suffix
			AAAAAA	-	BBB	-	ccc	-	DDD	-	EE	- F	- -	G	-	HH	н -		-	JJJ	-	KK	κ	- L	LL.		
MGT-EL-0600		Achsenbez.	LDT060	т-т	350	1-1	250	Т-Г	037	1-1	01	-12	<u>с</u> т.	x	Т-	1											
	LDT-EL-0600	Motorparameter	LDT060	++	350	1-1	250	1-1	037	-	01		1.	x	1-		: T-	NN	NI-	EC	1-	N	N	-1	V01	Ι.	par
	LDT-UL-0600	· · · · · · · · · · · · · · · · · · ·	LDT060	†-†	350	1-1	250	1-1	037	1-	01	- 3	2 .	1 x	1-		:1-	NN	N -	EC	1-	N	N	-†•	V01	t.	par
		1	LDT060	† †	350	1-1	250	1-1	037	-	01	-	3 .	1 x	-	IDO		NN	N -	EC	1-	N	N	- '	V01	t.	par
		Motordaten	1.07060	t.t	350	1.1	250	1-1	037	1.	01	-										мо	π	- '	V01	İ.	xls
		Motordateri	201000				200					_															
2x MGT-EL-0400	LDT-DL-0800	Achsenbez. Motorparameter	LDT080 LDT080 LDT080		250 250 250		250 250 250		037 037 037		01 01 01	-)	K - 1 - 2 -	· X · X	-		; - ; -	NN	N - N -	EC	-	N	N I	-	V01 V01	. .	par par
2x MGT-EL-0400	LDT-DL-0800	Achsenbez. Motorparameter	LDT080 LDT080 LDT080 LDT080		250 250 250 250		250 250 250 250		037 037 037 037	-	01 01 01 01	-)	K - 1 - 2 - 3 -	X	-		; - ; - ; -	NN NN	N - N - N -	EC EC	-	N	N I	- '	V01 V01 V01	- -	par par par
2x MGT-EL-0400	LDT-DL-0800	Achsenbez. Motorparameter Motordaten	LDT080 LDT080 LDT080 LDT080 LDT080		250 250 250 250 250		250 250 250 250 250 250		037 037 037 037 037	-	01 01 01 01 01	-)	K - 1 - 2 - 3 -	· X · X · X	-		; - ; - ; -	NN NN NN	N - N - N -	EC EC	-	NI NI MO	N I N I N I	- '	V01 V01 V01 V01	•	par par par xls
2x MGT-EL-0400 2x MGT-EL-0600	LDT-DL-0800	Achsenbez. Motorparameter Motordaten Achsenbez.	LDT080 LDT080 LDT080 LDT080 LDT080 LDT080		250 250 250 250 250 250		250 250 250 250 250 250		037 037 037 037 037 037		01 01 01 01 01 01	- 2 - 7 - 3 - 3 - 3	K - 1 - 2 - 3 -	· X · X · X	-		> - > - > -	NN NN NN	N - N - N -	EC EC	-	NI NI MO	N N N N N T	- '	V01 V01 V01 V01		par par par xls
2x MGT-EL-0400 2x MGT-EL-0600	LDT-DL-0800	Achsenbez. Motorparameter Motordaten Achsenbez. Motorparameter	LDT080 LDT080 LDT080 LDT080 LDT080 LDT080		250 250 250 250 250 250 250 250		250 250 250 250 250 250 170		037 037 037 037 037 037 037		01 01 01 01 01 01 01	- 7 - 7 - 7 - 7 - 7 - 7	K - 1 2 - 3 3		-		; - ; - ; -	NN NN NN	N - N - N -	EC EC	-	NI NI MO	N P	- '	V01 V01 V01 V01		par par par xls
2x MGT-EL-0400 2x MGT-EL-0600	LDT-DL-0800	Achsenbez. Motorparameter Motordaten Achsenbez. Motorparameter	LDT080 LDT080 LDT080 LDT080 LDT080 LDT080 LDT120 LDT120 LDT120		250 250 250 250 250 250 250 250 250		250 250 250 250 250 250 170 170		037 037 037 037 037 037 037 037		01 01 01 01 01 01 01 01		K - 1 - 2 - 3 - 1 - 2 -	· X · X · X · X			> - > - > - > -	NN NN NN	N - N - N -	EC EC EC		NI NI MO	N N N VT N		V01 V01 V01 V01		par par par xls par
2x MGT-EL-0400 2x MGT-EL-0600	LDT-DL-0800	Achsenbez. Motorparameter Motordaten Achsenbez. Motorparameter	LDT080 LDT080 LDT080 LDT080 LDT080 LDT080 LDT120 LDT120 LDT120		250 250 250 250 250 250 250 250 250 250		250 250 250 250 250 250 170 170 170 170		037 037 037 037 037 037 037 037 037		01 01 01 01 01 01 01 01 01	- 2 - 7 - 2 - 3 - 3 - 3 - 3 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4	K - 2 - 3 - 1 - 2 - 3 -	X X X X X			> - > - > - > - > - > -	NN NN NN NN NN	N - N - N - N - N -	EC EC EC EC		NI NI MO	N ·		V01 V01 V01 V01 V01 V01 V01		par par xis par par par par

Fig. 16 Assignement of the motors to the drives and files (page 3 of 3)